



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 6TH AVENUE
SEATTLE, WASHINGTON 98101**

DATE: See date of Section Chief signature

SUBJECT: CLEAN AIR ACT INSPECTION REPORT
Republic Services Roosevelt Regional Landfill, Roosevelt, WA

FROM: Daniel Heins, Environmental Scientist
Air Toxics Enforcement Section, EPA Region 10

THRU: Derrick Terada, Acting Section Chief
Air Toxics Enforcement Section, EPA Region 10

TO: File

BASIC INFORMATION

Facility Name: Republic Services Roosevelt Regional Landfill

Facility Location: 500 Roosevelt Grade Road, Roosevelt, WA 99356

Date of Inspection: On Site Inspection: June 28, 2022
Virtual Conference: July 7, 2022

EPA Inspector(s):

1. Daniel Heins, Environmental Scientist ^{a,b}
2. Alyson Skeens, Clean Air Act Inspector ^{a,b}

Other Attendees:

1. Art Mains, Washington Environmental Manager – Republic Services ^{a,c}
2. Travis Gray, Environmental Technician – Republic Services ^c
3. Michael Corrao, Environmental Specialist – Republic Services ^{a,c}
4. Corey Harkness, Environmental Technician – Weaver Consultants ^b
5. Melissa Green, Environmental Consultant – Weaver Consultants ^a
6. Josh Shaw, General Manager – Republic Services ^a

^a Attended virtual conference

^b Present for all of on-site, including SEM

^c Present during inspection but not during SEM

Contact Email Address: AMains@republicservices.com, jshaw2@republicservices.com

Facility Type: Municipal solid waste (MSW) landfill

Purpose of Inspection: Surface emissions monitoring (SEM) and evaluating compliance with landfill air rules.

Regulations Central to Inspection: 40 C.F.R. Part 60, Subpart WWW; 40 C.F.R. Part 62, Subpart OOO; 40 C.F.R. Part 63, Subpart AAAA

On Site (6/28) Arrival Time: 9:00

On Site (6/28) Departure Time: 16:30

Virtual Conference (7/7) Start Time: 10:30

Virtual Conference (7/7) End Time: 11:30

Inspection Type:

- ☐ Unannounced Inspection
- ☒ Announced Inspection

SITE OVERVIEW

The following information was obtained verbally from Republic Services representatives, including their consultants, during the virtual conference.

Operations Overview:

The Roosevelt Regional Landfill (the "Landfill") is owned and operated by Republic Services ("Republic"). The Landfill began operations in 1990. The site is permitted for 915 acres and 244.6 million cubic yards of waste, of which 429 acres have been constructed with approximately 60 million cubic yards of waste in place. The Landfill currently has an estimated 75 years left of its active life under the permitted capacity. The Landfill receives approximately 7,200 tons per day of waste. Waste received is approximately 60% MSW, 20% construction & demolition waste (C&D) or land-clearing debris, and 20% other waste. The "other" category includes asbestos, petroleum contaminated soils, and treated medical wastes.

There is no final cover in place at the landfill. Approximately 425 acres of the landfill are under intermediate cover, consisting of 18" of soils. Approximately 4 to 5 acres are under daily cover, which is composed of either on-site soils, contaminated soils, or tarps. Auto fluff is approved as an alternative daily cover but is not utilized.

Leachate gravity drains to three dual lined ponds at the site. Some collected leachate is re-introduced into the site via shallow buried piping on the Landfill, while the rest evaporates from the ponds. The Landfill generates approximately 10 to 12 million gallons of leachate per year, of which approximately 6 million gallons are recirculated.

The gas collection and control system (GCCS) contains 260 landfill gas (LFG) collection points, of which approximately 60% are vertical, 20% are horizontal, and 20% are dual collectors in the leachate system.

Collected LFG is routed to the HW Hill Renewable Natural Gas (RNG) Plant owned and operated by Klickitat County Public Utility District #1. Over 95% of collected LFG is routed to the RNG Plant, with LFG routed to the Landfill's flares only when there are maintenance shutdowns at the RNG Plant. The Landfill has two enclosed flares, one with a 5500 standard cubic feet per minute (scfm) capacity and one at 6000 scfm. The total LFG flow from the Landfill is typically around 7000 scfm.

SITE TOUR — MAY 2, 2022

- ☒ Presented Credentials
- ☒ Stated authority and purpose of inspection
- ☐ Provided Small Business Resource Information Sheet
- ☒ Small Business Resource Information Sheet not provided. Reason: Not a small business
- ☒ Provided CBI warning to facility

Data Collected and Observations:

After introductions and a brief site orientation/safety briefing at the Landfill's office, Daniel Heins and Alyson Skeens began the SEM. Corey Harkness accompanied EPA for the SEM, but did not have an instrument available to monitor with. Conditions were very windy, however Corey Harkness (as well as other staff on site) stated that these were fairly typical conditions on site. EPA showed all readings to Corey Harkness for visual confirmation of the readings and instructed Corey Harkness to state if he had any concerns with EPA's monitoring methods at any point. EPA used a ThermoFisher Toxic Vapor Analyzer 2020 (TVA) to perform EPA Reference Method 21 for the SEM.

In the morning (10:00 - 11:50), Daniel Heins conducted the monitoring with the TVA, covering a loop on the northeastern portion of the Landfill. In the afternoon (13:00 - 15:45), Alyson Skeens conducted the monitoring under the supervision of Daniel Heins, covering a loop on the southern portion of the Landfill. Over the course of the day, EPA identified 16 points in exceedance of 500 parts per million (ppm), of which 5 were above 10,000 ppm. 13 of the exceedances were at clearly identifiable penetration points. Two exceedances were at exposed pieces of truncated piping or hose sticking out from the cover. One exceedance was at a partially covered valve box dug into the landfill cover.

EPA observed and documented a pipe that appeared to have been leaking condensate, having stained the surrounding soil underneath and downhill of the pipe cap.

Around approximately 14:45 while monitoring the older, southeast lobe of the Landfill, both EPA inspectors noticed a strong odor, drawing attention to a recently deposited tank of liquid, which Corey Harkness identified as condensate. The EPA inspectors did not witness the tank truck being emptied, but walked around the area in the center of the southeast lobe where the liquid was spreading out. Both EPA inspectors noted the pungent odor of the liquid. Immediately downwind of the condensate, EPA measured a concentration of 50 ppm. Outside of where the condensate was actively flowing, the concentration was less than 10 ppm.

Photos and/or Videos: were taken during the inspection. See Appendix A.
Field Measurements: were taken during this inspection. See Appendix B.

INSPECTION CONFERENCE — MAY 4, 2022

- ☒ Provided U.S. EPA point of contact to the facility
- ☒ Provided CBI warning to facility

Staff Interview:

The Landfill is subject to 40 CFR Part 62, Subpart OOO, having previously been subject to Part 60 Subpart WWW. The Landfill is also subject to Part 63, Subpart AAAA, and has opted in to demonstrating compliance with Subpart OOO through the Subpart AAAA requirements where allowed.

The Landfill has a site-wide higher operating value (HOV) of 165 degrees Fahrenheit. Most of the site operates between 135 and 145 degrees Fahrenheit, with occasional wells operating at higher temperatures. Republic attributed the temperatures to the size and density of the landfill. The Landfill uses HDPE for its gas collection wells and stated that they have not seen issues with pipe softening in heat. Wells at the landfill are sometimes pinched off due to differential settlement. Republic conducts quarterly surveys of liquid levels at their wells, during which any pinched or obstructed wells are also identified. Republic stated that they have more wells than are needed for sufficient density of gas collection, and because of that they may allow isolated wells to become pinched or be obstructed without corrective action if they do not detect SEM exceedances. If Republic observed SEM exceedances not resolved by cover integrity corrections or had multiple wells lose function in close proximity, then they would re-drill.

The Landfill has three wells with dewatering pumps in operation. Republic stated that these are all used for management of heat rather than ensuring unobstructed well perforations, with the liquid carrying heat out from inside the Landfill. Liquid is pumped to shallow pipes to diffusely re-introduce into the Landfill, just as is done for leachate recirculation. Daniel Heins asked for further information about the liquids observed being deposited on the southeast corner of the Landfill. Republic stated that this was part of monthly maintenance for the catch basins and that the liquid is placed into that area to evaporate.

For greenhouse gas reporting and LFG generation estimates for GCCS sizing, Republic excludes contaminated soils as nondegradable and Republic uses different gas generation constants for the C&D.

Gas migration probes are located just outside the waste boundary, rather than at the fence line. Republic typically sees non-detect as their methane readings and stated that they would take action with any elevated readings.

Republic stated that they have not received any odor complaints and that they conduct daily odor patrols on site.

Republic contracts out its quarterly SEM surveys to Weaver, and has done so for the past 5 years. Prior to the effective date of Subpart OOO, Republic did not monitor penetration points during its regular surveys, but had done a survey to check. The only parts excluded from monitoring as "dangerous areas" are where trucks are actively working and placing waste that day. Republic has not detected a single exceedance of the 500 ppm standard in the past 5 years of quarterly SEM surveys.

Requested documents:

The following documents were requested and supplied ahead of the inspection:

- Two most recent semi-annual NSPS reports
- Results of any cover integrity reports and quarterly SEM monitoring events that have been occurred since the most recent semi-annual
- GCCS map
- Map of cover by type in place (final vs intermediate vs daily cover)
- Most recent wellhead water level survey results

The following documents were request during the conference and confirmed via subsequent email:

- Past 12 months of flare monitoring data
- Most recent flare performance tests
- Past year of migration probe data and a map of the probe locations
- Current GCCS Design Plan, along with any versions that have been active in the past 5 years
- Most recent LandGEM run, with a statement to what wastes are excluded or assigned different generation constants (if not already included in the report)
- A map of the GCCS showing extent of any horizontal collectors if these are utilized to demonstrate a sufficient density of gas collection
- Landfill cell map and year of first waste placement for each cell
- Annual waste deposited tonnages by type from 2017 to present
- 2021 Part 98 Greenhouse Gas Report
- Rest of the past 5 years of Annual/Semi-Annual Reports
 - All NSPS/NESHAP/EG reports, SSM reports, and air permit reports as applicable
 - Most recent SEM reports, or at least as much of it as has been completed by the end of July, even if they are not a part of any final semi-annual
- Any versions of the SSM plan that have been in place in the past 5 years
- Past 5 years of wellhead parameter monitoring (as a spreadsheet or .csv)
- Past 5 years of gas flow to the RNG plant (as a spreadsheet or .csv)
- Liquids additions report (past 5 years data)

Concerns:

Daniel Heins expressed as a concern that despite Republic having never found any SEM exceedances in its past 5 years of quarterly monitoring, including a full year of checking all penetration points, EPA identified 16 points in exceedance of 500 ppm, including 5 points above 10,000 ppm, indicating potential concerns with Republic's SEM/Method 21 procedures.

DIGITAL SIGNATURES

Daniel Heins, Report Author

Derrick Terada, Acting Section Chief

APPENDICES AND ATTACHMENTS

Appendix A: Digital Image Log

Appendix B: Field Measurement

APPENDIX A: DIGITAL IMAGE LOG

Inspector Name: Daniel Heins & Alyson Skeens

Archival Record Location: US EPA SharePoint

2022-06-28 Images

Image #	File Name	Time	Description	Flag #
1	P6270020.JPG	10:18	T18A1 at horizontal exit from cover	1
2	P6270021.JPG	10:26	T18-A4 at horizontal exit from cover	2
3	P6270022.JPG	10:26	Close up on animal burrow at T18-A4	2
4	P6270023.JPG	10:37	17VO3 vertical well	3
5	P6270024.JPG	11:14	10V06	4
6	P6270025.JPG	11:17	Liquid stained dirt from leaking pipe cap	n/a
7	P6270026.JPG	11:22	A10TP03, valve for header	5
8	P6270027.JPG	11:23	Close up on A10TP03	5
9	P6270028.JPG	11:23	Close up on A10TP03	5
10	P6270029.JPG	11:28	Abandoned vertical well(?) uphill from 10R16 (small open pipe and base of larger pipe)	6
11	P6270030.JPG	11:29	Abandoned vertical well(?) uphill from 10R16 (small open pipe and base of larger pipe)	6
12	P6280031.JPG	13:31	LC058 at horizontal exit from cover	7
13	P6280032.JPG	13:37	08V02 vertical well	8
14	P6280033.JPG	13:43	Pipe in ground by 8V08	9
15	P6280034.JPG	13:49	08V11 vertical well	10
16	P6280035.JPG	13:55	Remote vertical wellhead(?) ~50' west of 9B01	11
17	P6280036.JPG	14:17	10V19 vertical well	12
18	P6280037.JPG	14:20	6V11 vertical well	13
19	P6280038.JPG	15:04	Wood covered valve box dug into the cover	14
20	P6280039.JPG	15:12	Exposed hose coming out of cover	15
21	P6280040.JPG	15:34	LC057 at horizontal exit from cover	16

APPENDIX B: FIELD MEASUREMENT DATA

Measured Exceedances

Flag #	Reading (ppm/%)	Description	Latitude	Longitude
1	2400	T18A1, where horizontal exits dirt	45.81478218	-120.1825788
2	5%	T18-A4, where horizontals exit dirt (two animals burrows)	45.81478541	-120.1807079
3	1200	17VO3, base of well	45.81219925	-120.1796552
4	730	10V06	45.80618911	-120.1762359
5	2200	A10TPO3, valve for header	45.80587112	-120.1768405
6	2%	Abandoned well(?) uphill from 10R16 (small open pipe and base of larger pipe)	45.80615	-120.177414
7	3400	LC058, where exits dirt, also un-gasketed cap	45.80456151	-120.1877082
8	1000	08V02 (base)	45.80532307	-120.1864192
9	1%	Pipe in ground by 8V08	45.8054303	-120.185231
10	1500	08V11 at base	45.80608553	-120.1852499
11	600	Remote wellhead(?) ~50' west of 9B01	45.80647645	-120.1845794
12	1200	10V19 at base	45.80654769	-120.1790285
13	1%	6V11 at base	45.80601013	-120.1794204
14	6000	Wood covered valve box	45.80357938	-120.1793451
15	1.5%	Exposed hose coming out of dirt	45.80335383	-120.1804316
16	1000	LC057 at meeting with dirt	45.80349002	-120.1861183

All readings are given as methane parts per million, except for readings above 10,000 ppm which are given as percent methane.

Calibration and Instrument Information

EPA used a ThermoFisher Toxic Vapor Analyzers 2020 (TVA2020), designated as TVA A95732. The EPA TVA2020 response time is approximately 4.5 seconds.

	Calibration gas ppm	A95732 ppm
8:50 calibration check	500	491
8:50 calibration check	10000	9901
13:00 drift check	500	482
16:00 drift check	500	503

EPA calibration gases

Composition	Lot #	Expiration
Air zero grade THC <1 ppm	DBJ-1-24	March 2023
Methane in air 500 ppm	1-167-64	June 2024
Methane in air 10,000 ppm	228894	February 2023

Background readings:

Upwind: -1 ppm

Downwind: 2 ppm

Map of Detected Exceedances



SEM exceedance locations plotted over Google Maps satellite imagery. Approximate monitoring paths included, derived from GPS data. Morning path shown in green, afternoon in blue.